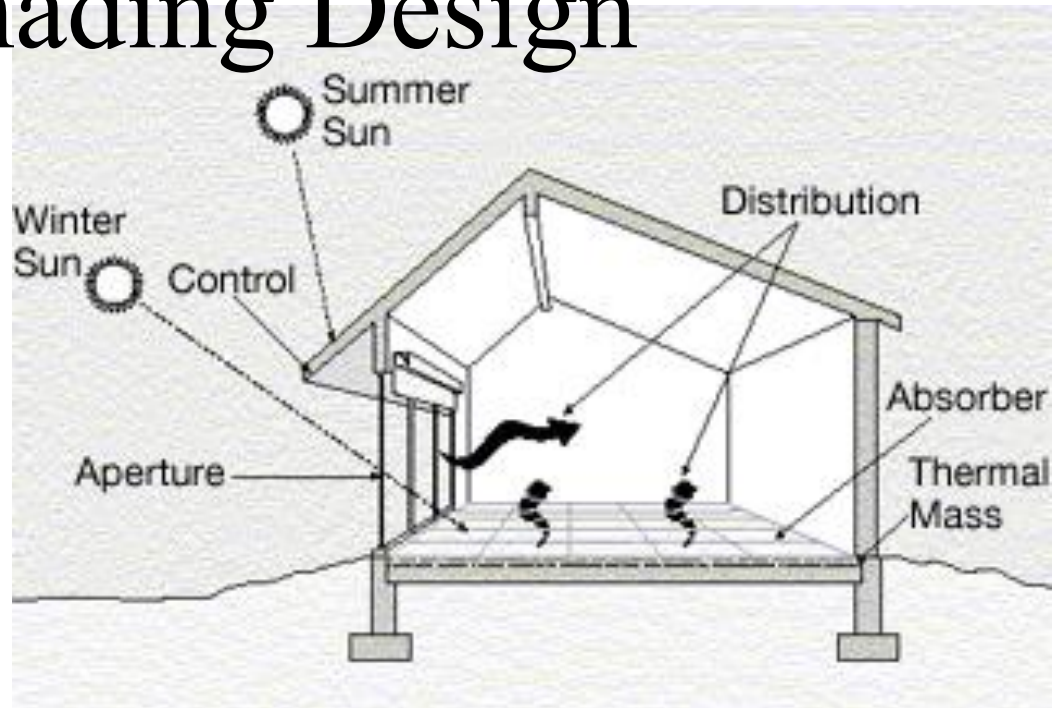
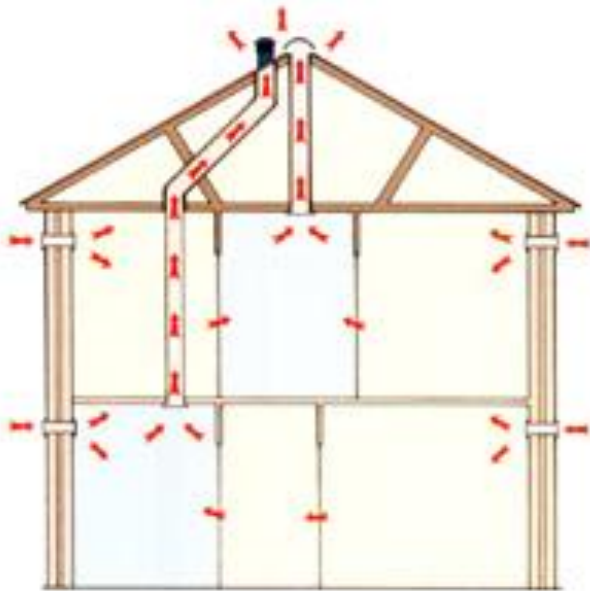
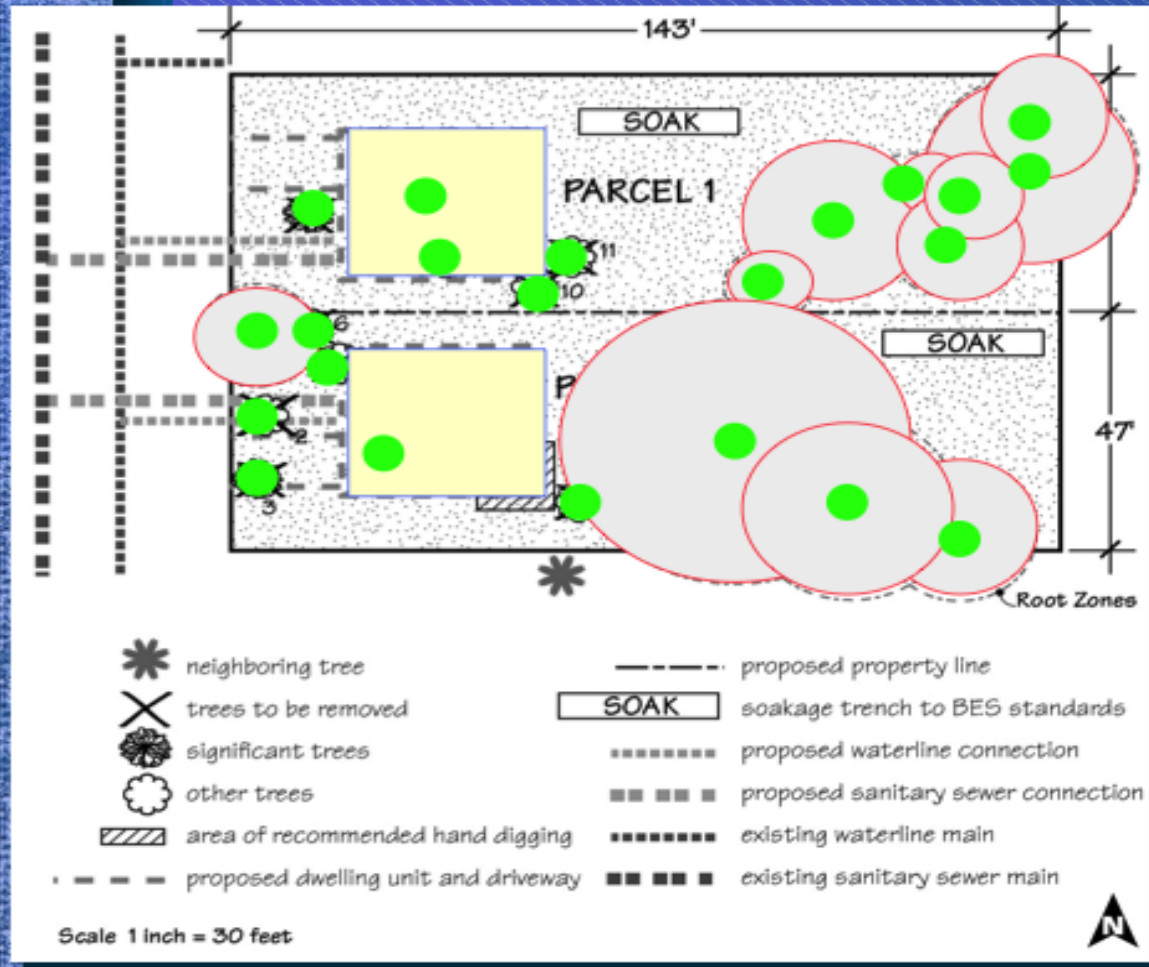


# SL-1 Passive Solar, Ventilation & Shading Design



# SL-2 Preservation Plan

## Typical Preservation Plan



**Must show:**

**All trees  $\geq 6"$  dbh that are entirely on site.**

**Root protection zones for trees to be preserved.**

**House footprint(s) [conceptual].**

**New for 2008!**

## SL-3 Follow State Plans & Smart Growth Principles

- Must do all 4!
- **SL-3a** Pedestrian Paths & Bike Trails
- **SL-3b** Secure & Safe Bike Racks
- **SL-3c** Safe Shelter for Commuters
- **SL-3d** Access to Neighborhood or Project Park





# IA-1 Ducts & HVAC Protected from Dust

- Seal ducts to prevent construction dusts and debris from entering system.
- Use temporary filters
- In specs: *Indoor Environmental Quality Management Plan for construction*
- IAQ Guideline for Occupied Buildings under Construction (SMACNA)



Sheet Metal & A.C. National Contractors Assn.

# IA-2 Low VOC Interior Paints & Finishes

## IA-3 Low VOC Adhesives & Sealants

- No toxic solvents, formaldehyde, mercury or hydrocarbons
- Safer for people with chemical sensitivities
- See VOC guide in Appendix 1 of the Green Future Program Requirements



# IA-4 Durable, Healthy Flooring

- Hardwood (including Bamboo)
- Linoleum
- Ceramic Tile
- Carpet & Rug Institute's Green Label Plus Carpeting



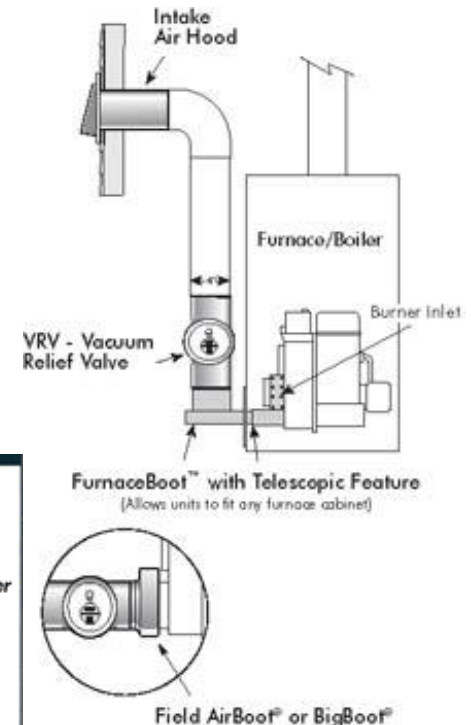
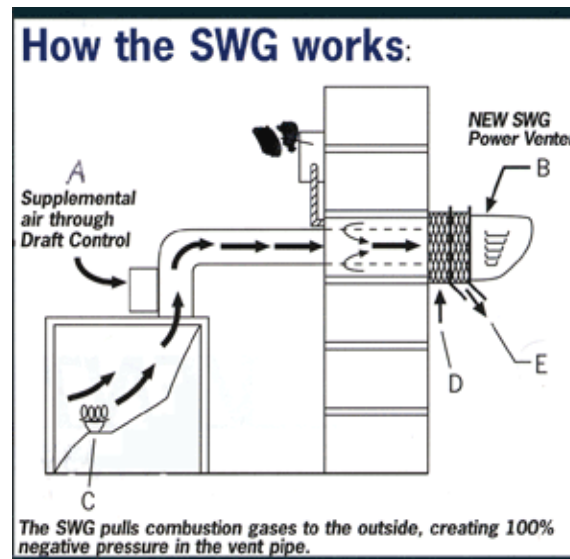
# IA-5 Medium-efficiency (or higher) air filters

- MERV-8 minimum (Minimum Efficiency Reporting Value 1-16) the higher the number, the more particles removed.
- Pleating captures more particles
- 30-35% more effective in eliminating air particulates



# IA-6 All Combustion devices power vented or sealed combustion

- Prevents back-drafting of carbon monoxide, & other gas products into indoor air
- Good for Too-tight construction





# IA-7 Automatic Bathroom Ventilation

## IA-8 Direct Venting of Kitchen

- Rated at 1.5 sones or less
- A “sone” is a unit of loudness (1 sone = 40 decibels)
- When fans are too noisy, people tend to unplug them.
- Minimize moisture, odor & smoke
- Automatic off-switch and/or humidity-sensors
- Don't rely on Windows!!



what's lurking in  
your bathroom?

Airborne pollutants. Unpleasant odors. Mold-causing moisture. They can invade your bathroom in no time. And the effects can be damaging. Not only to structures and surfaces, but to your health. Panasonic ventilation fans work silently and efficiently to help clear the air. So you can worry less—and breathe a whole lot easier.

No bathroom project is complete without a Panasonic ventilation fan.  
Let us help find the right fan for you with our interactive fan selector at:

[panasonic.com/ChooseYourFan](http://panasonic.com/ChooseYourFan)



**WhisperGreen**  
VENTILATION FAN



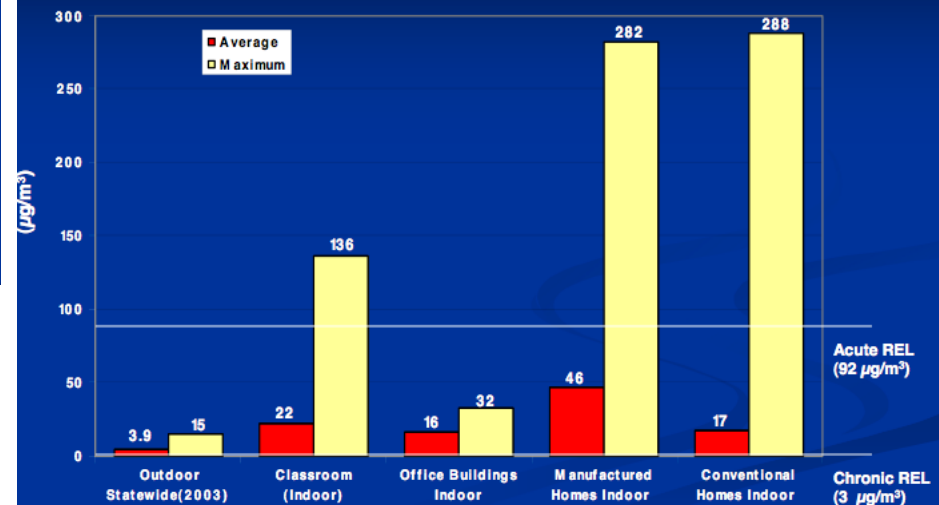
# IA-9 Encapsulation of non-UF (Urea Formaldehyde) free composites

## Daily Activity Patterns

- On average, people spend 85% or more of each day indoors
- HCHO concentrations are considerably higher indoors vs. outdoors
- HCHO concentrations from composite wood products lead to direct human exposure



## What are Typical Formaldehyde Levels?



70 years at 1 µg/m³ = 6 lifetime cancers per million

**New for 2008!**

# IA-10 Insulation with Low Formaldehyde Content

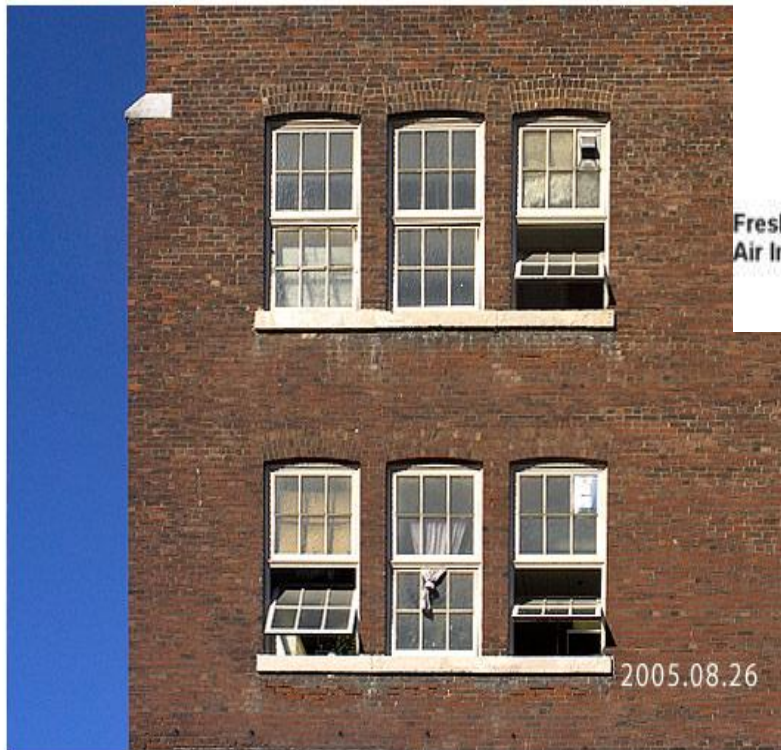
- Johns Manville eliminated the use of formaldehyde in their insulation products in 2002
- Cellulose (recycled newspaper)
- Recycled cotton & denim (treated w/nontoxic flame retardants)
- Icynene (HCFC-free)



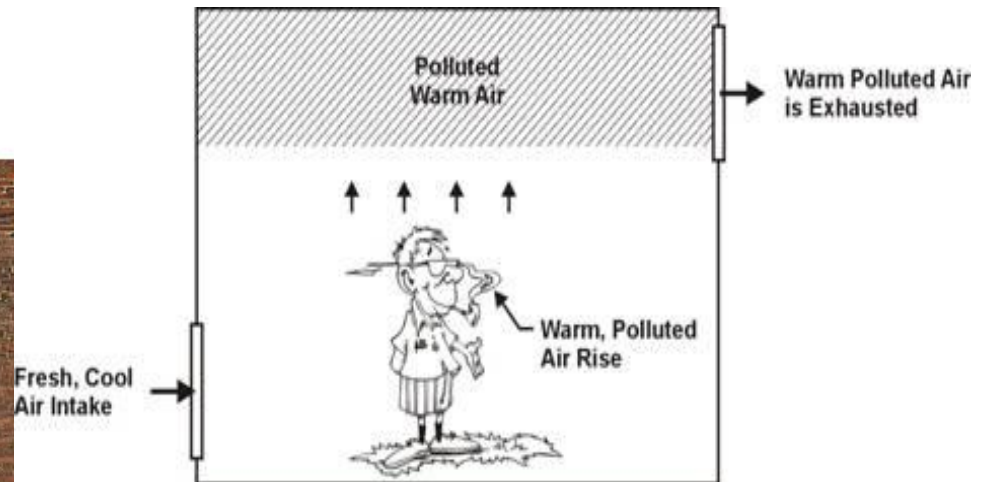
**New for 2008!**

# IA-11 Operable Windows

© 2005 richardjohnson.ca



Pinched

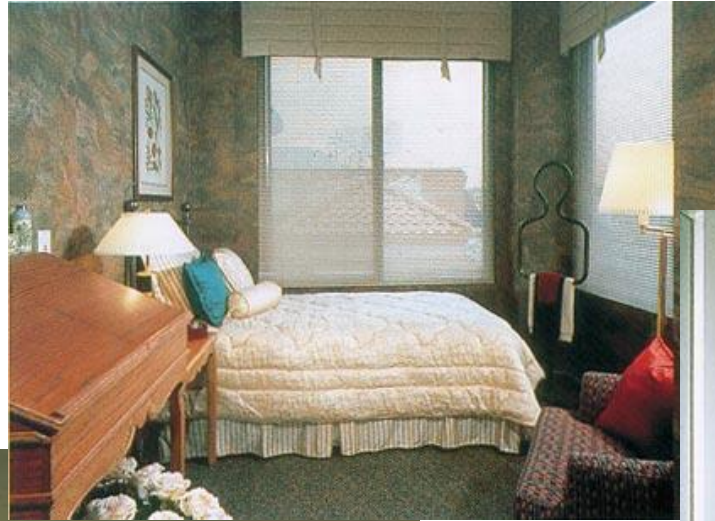




**New for 2008!**

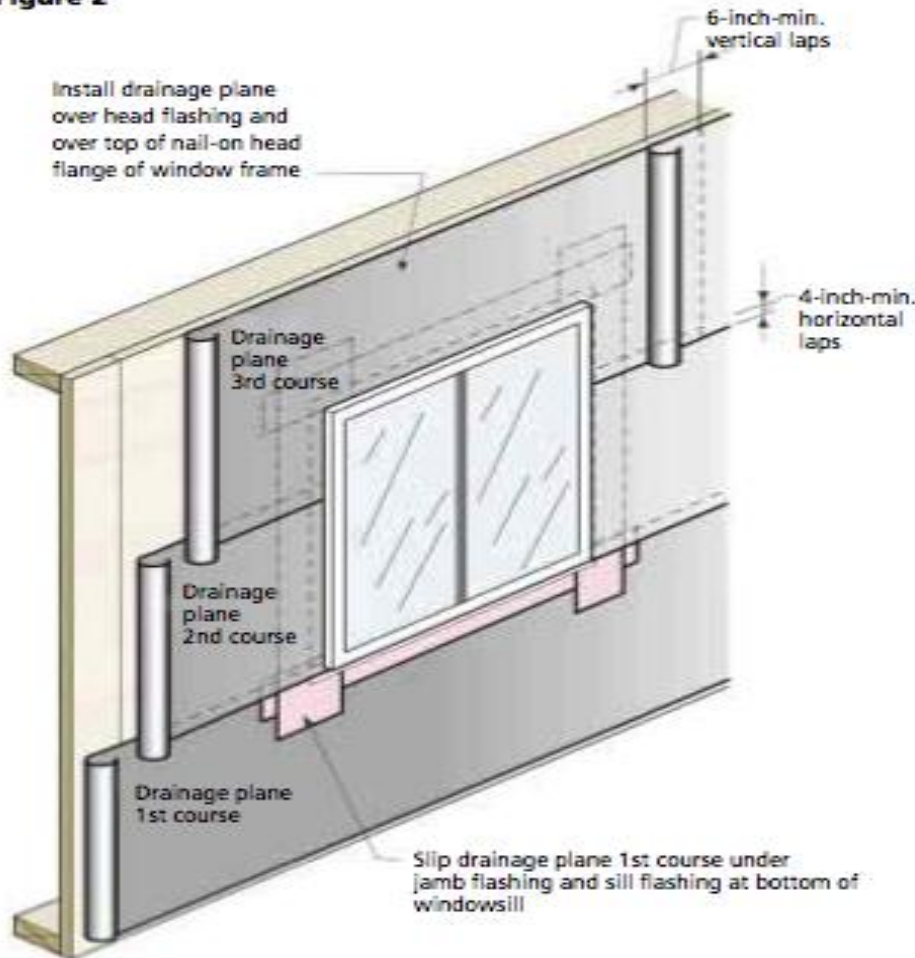
# IA-12 Access to Daylighting & View from Each Bedroom

- Consider creating a courtyard to get light to interior spaces
- Orient the most used rooms to the best views



# DM-1 Exterior Wall Drainage Plane

Figure 2



## Drainage Plane Application

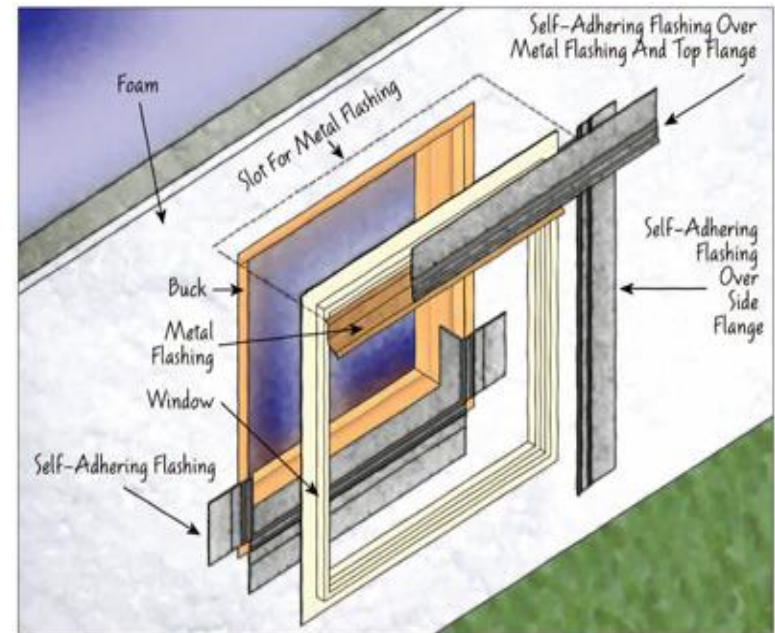
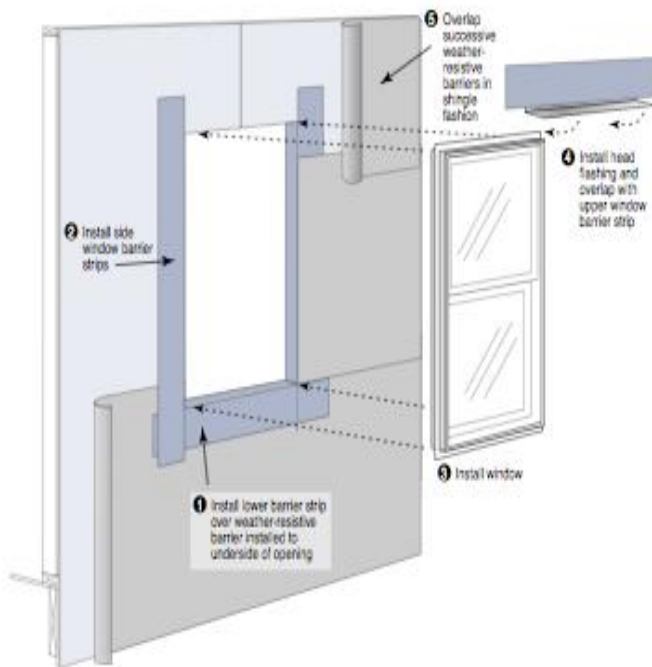
- Windows/doors without flanges sealed to jamb and sill flashing around opening with sealant over backer rod

- “*Drain the Rain*”
- Brick veneer cavity walls
- Drainable EIFS (Dryvit)
- Vented or porous ext. cladding/air cavity/drainage layer on support wall/rigid, water-tight, airtight support wall

# DM-2 Window Detail & Flashing

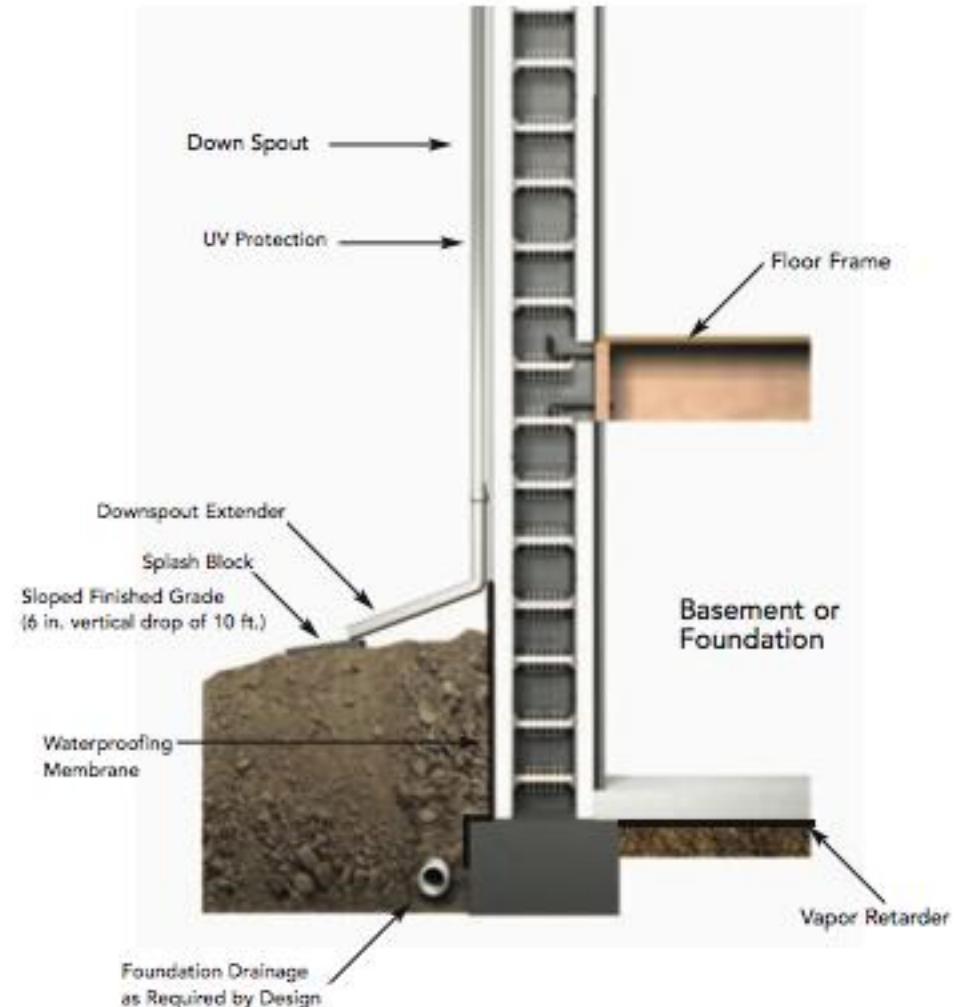
- EEBA - Energy & Environmental Building Association
- Appendix 2 in Green Future Requirements
- Flashing creates a drainage plane to keep all water out!
- Requires good supervision in the field.

FLASHING WINDOW OPENINGS



# DM-3 Gutter Downspouts discharge 3' from Foundation

- Kicks water away from foundation - 6 feet away is best
- Stops below-grade moisture problems
- Attach a 90 degree elbow if too close to property line





***New for 2008!***

## DM-4 Install 30-Yr for Pitched & 20-Yr for Flat Roofs

- A Tax Credit requirement already.



# EE-1 All Units NJ Energy Star Certified

## EE-2 All Appliances Energy Star

- Meet intent of program
- 15% More efficient than code

*Must have at least one  
Utility (gas or electric)  
Individually metered*

Front loading  
Washing machine



**New Jersey  
ENERGY STAR® Homes**



# EE-3 Efficient Lighting

## ENERGY STAR® ADVANCED LIGHTING PACKAGE SAVINGS LOOK-UP TOOL

This table illustrates the potential energy bill and bulb replacement savings that could be realized if a standard lighting package were replaced with fixtures that earned the ENERGY STAR. On average, an ENERGY STAR Advanced Lighting Package will use 1/3 of the energy used by a standard lighting package while providing equal or more light.



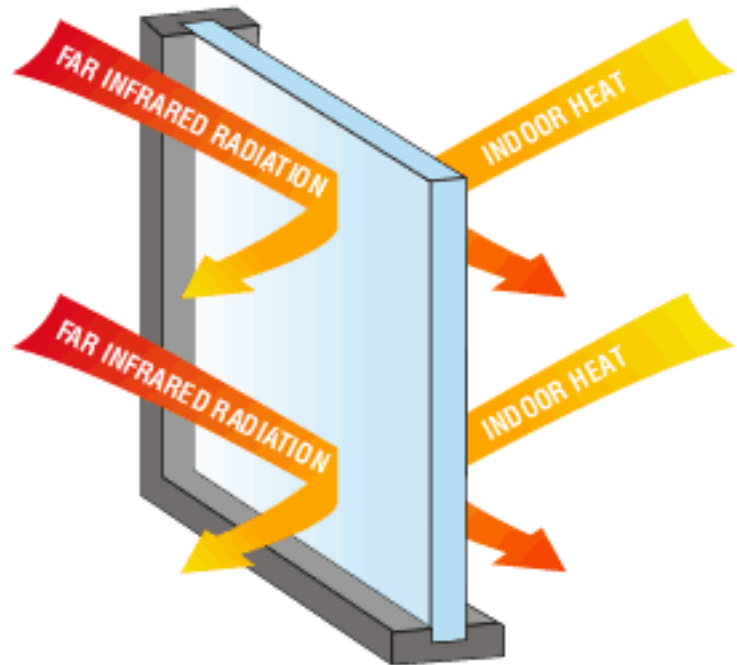
Electricity price per kilowatt-hour (paid by the homeowner)	The number of fixtures that will be replaced in this house	Total annual electricity and bulb replacement savings realized when using ENERGY STAR qualified fixtures	Increase to price of home resulting from upgrade to ENERGY STAR qualified lighting	Mortgage payment increase (over 12 months) resulting from upgrade to ENERGY STAR qualified fixtures	Total annual savings after increase to mortgage is taken into account	Total savings over 8 Years	Total savings over 30 Years
12.5¢	22	\$177	\$660	\$4	\$130	\$1,038	\$3,892
	20	\$161	\$600	\$4	\$118	\$943	\$3,538
	18	\$145	\$540	\$3	\$106	\$849	\$3,184
	16	\$129	\$480	\$3	\$94	\$755	\$2,830
	14	\$113	\$420	\$3	\$83	\$660	\$2,477
	12	\$97	\$360	\$2	\$71	\$566	\$2,123
	10	\$81	\$300	\$2	\$59	\$472	\$1,769
	8	\$64	\$240	\$1	\$47	\$377	\$1,415
	6	\$48	\$180	\$1	\$35	\$283	\$1,061

Products that earn the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy. [www.energystar.gov](http://www.energystar.gov)



## EE-4 Specify Windows w/Low-E coating

- Low emissivity refers to a coating on glass that reduces heat loss
- The lower the emissivity rating, the better insulation of the window in regard to heat loss
- Light can enter, heat stays out
- Less heat used in winter and less A.C. in summer





# EE-5 Basement Ceiling Encapsulated Insulation Batts

- Determine where building envelope is.
- Encapsulate to prevent airborne particulates
- Seal at edge of first floor framing and rim joist

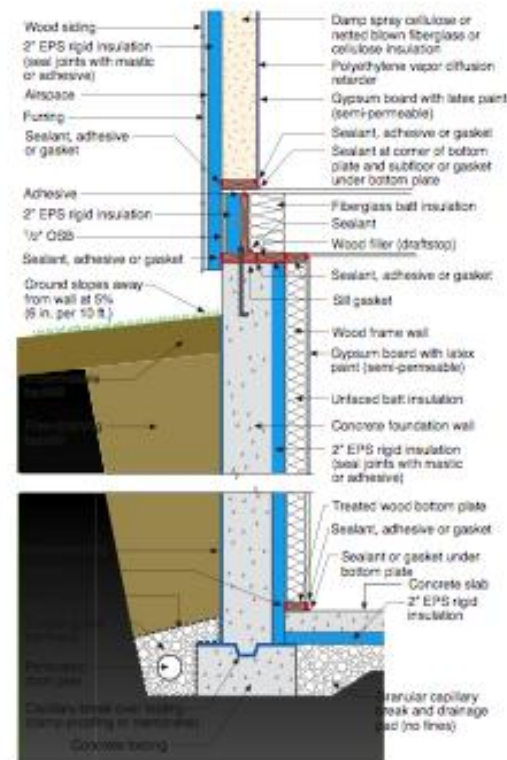
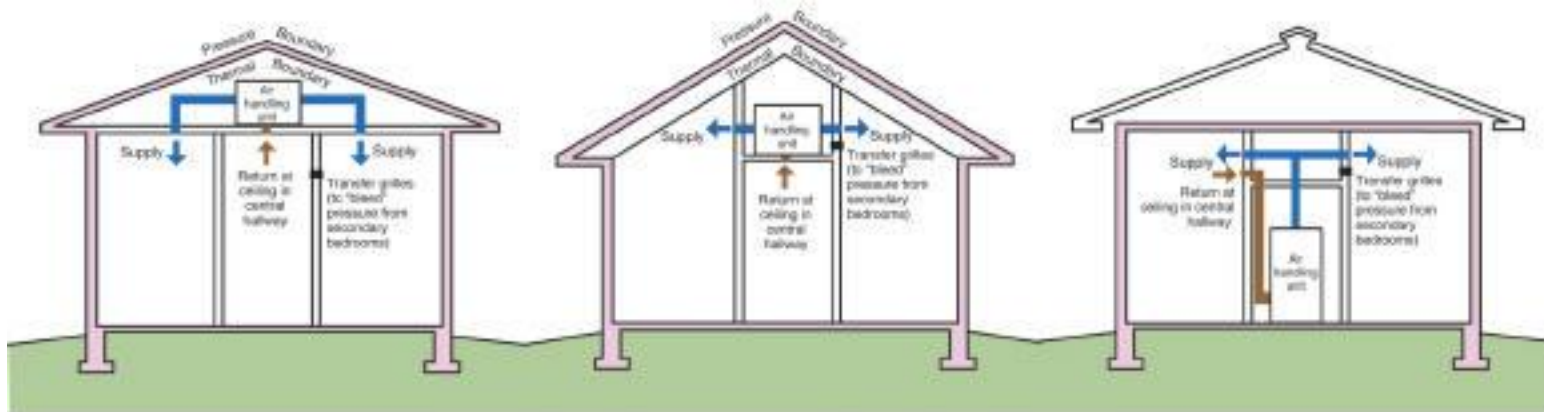


Figure 14  
Additional interior basement insulation

# EE-6 All ductwork in conditioned space

- Reduce heat loss to unconditioned space
- Less energy spent to raise or lower indoor temperature
- Air quality not as susceptible to outside pollutants.



Note: Colored shading depicts the building's thermal barrier and pressure boundary. The thermal barrier and pressure boundary enclose the conditioned space.

# EE-7 Occupancy & Daylighting Controls

- Photocells on outdoor lighting - turns off during day.
- Occupancy sensors for rooms w/intermittent vacancy. (meeting rooms, laundry, storage/supply rooms)

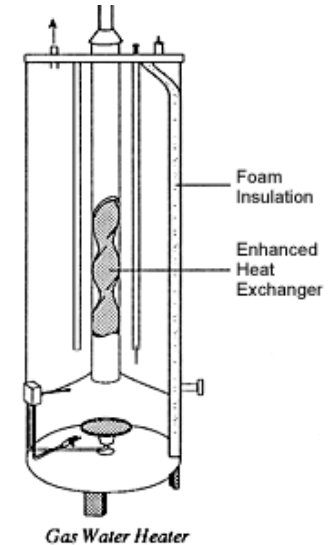


# EE-8 High-Energy Factor Water Heater

- Gas water heaters: tank walls insulated, intermittent-ignition instead of standard pilot light, enhanced heater exchanger
- *Annual Fuel Utilization Efficiency (AFUE)* represents the % of fuel turned into heat.
- The higher the AFUE, the more efficient the unit & \$\$ saved.

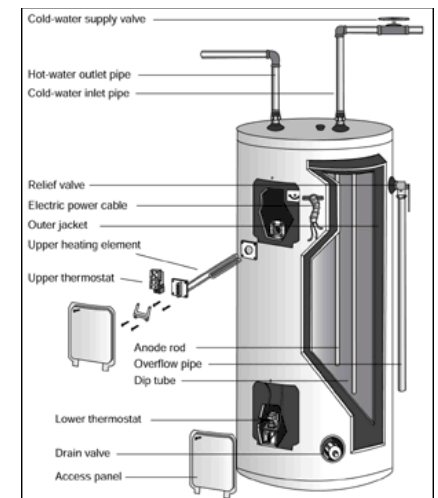


*Gas-fired units: Energy factor of 0.60 or greater.*



*Tankless models: 0.65 Energy Factor or greater*

*Electric tank models: 0.91 Energy Factor or greater*





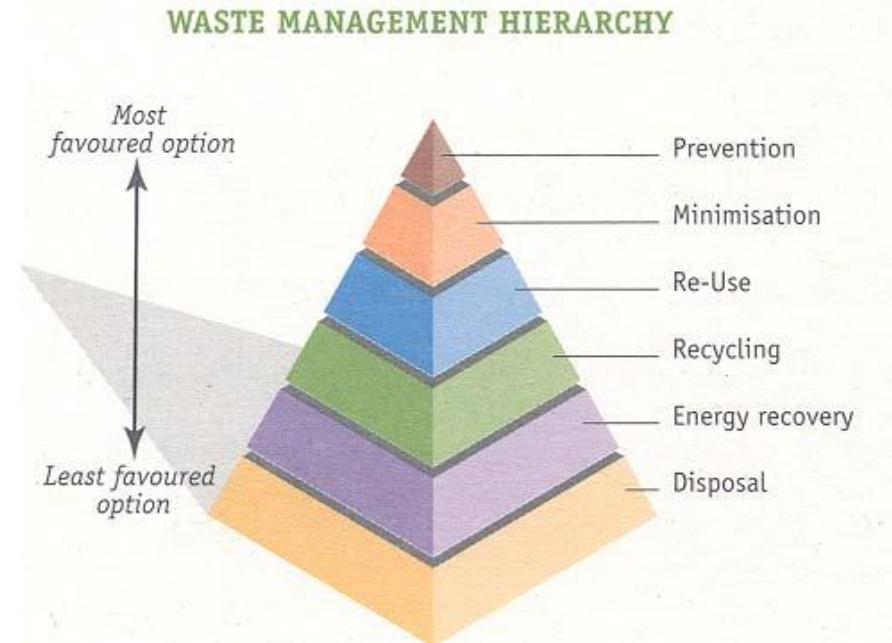
# EE-9 Programmable Thermostats

- Weekday/Weekend programming
- Vacation Override
- Keyboard Lock
- Energy Monitor
- Filter Change Indicator
- Auto Season Changeover



# RE-1 Recycle/Salvage construction debris

- Min. of 50% project waste shall be diverted from landfill
- Contract with hauler/recycler indicating off-site separation method



*Waste Management Plan  
For Construction and  
Demolition Waste should  
Be included in specs.*

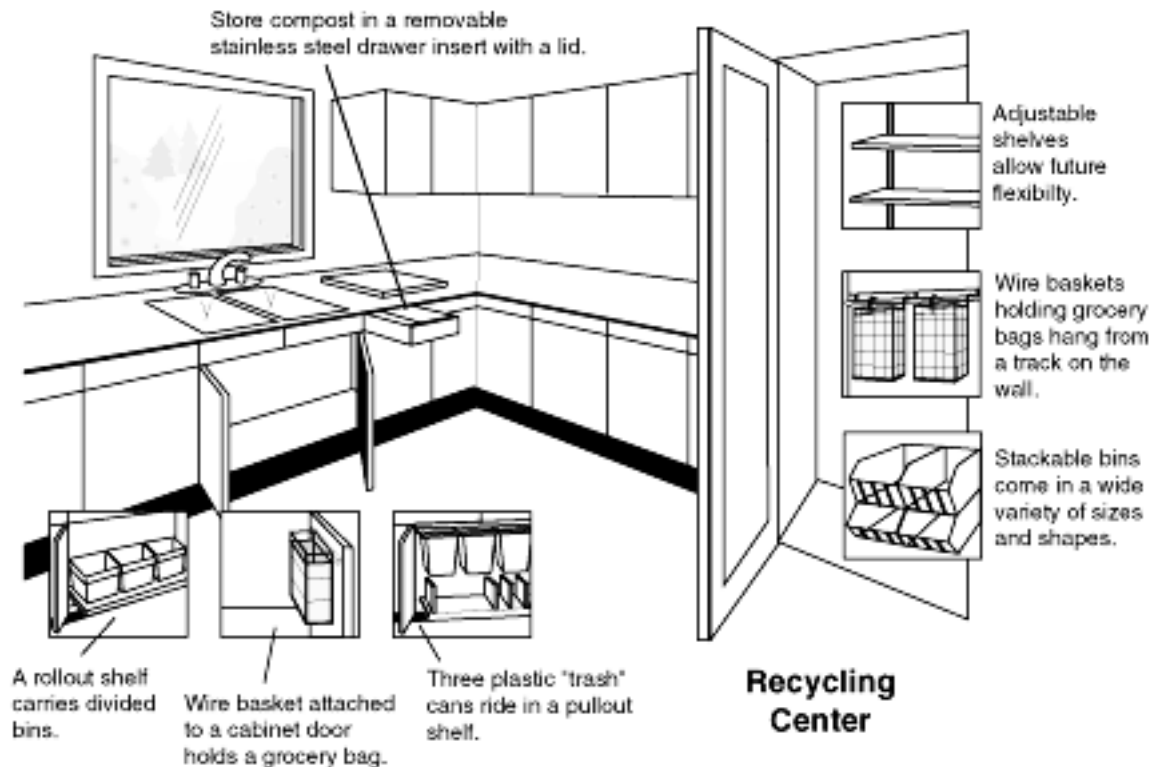
# RE-2 Recycling Centers in Common Areas

- Easy access, well-marked stations.
- Accessible
- Compatible w/township or municipal recycling program



# RE-3 Recycling Plan for Each Unit

- Designated containers and space for tenants to collect recyclables
- Separate glass, plastic metals, paper

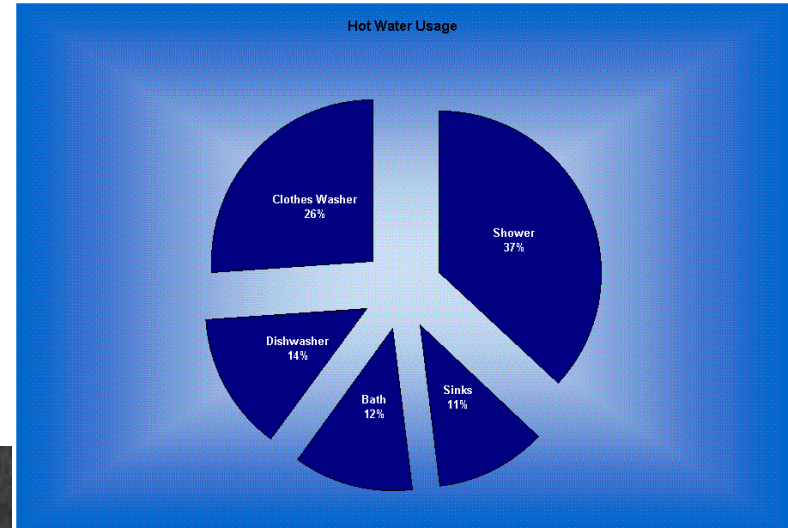




# WC-1 Low-Flow Fixtures

## WC-2 High Efficiency Toilets

- Kitchen faucets: max of 1.5 gpm (gallons per minute)
- Bathroom faucets: 0.5 gpm
- Showerheads: max of 2 gpm
- Toilets: less than 1.3 gallons per flush efficiency or better



# WC-3 Water Efficient Landscaping

- Native &/or drought tolerant
- Turf no more than 50%
- Require less fertilizer and pesticides

Native Plants of New Jersey



*Amorpha tabernaemontana*  
Blue Star



*Anemone canadensis*  
Canadian Anemone



*Arisaema triphyllum*  
Jack-in-the-pulpit



*Asclepias incarnata*  
Swamp Milkweed



*Asclepias syriaca*  
Common Milkweed



*Aster (Eurythia) divaricatus*  
White Wood Aster



*Aster (Symphyotrichum) novae-angliae*  
New England Aster



*Chelone glabra*  
White Turtlehead



*Eupatorium perfoliatum*  
Boneset



*Eupatorium sp.*  
Joe-pye-weed



*Geranium maculatum*  
Wild Geranium



*Lilium tigrinum*  
Turk's Cap Lily



*Lobelia cardinalis*  
Cardinal Flower



*Lobelia siphilitica*  
Great Blue Lobelia



*Mertensia virginica*  
Virginia Bluebells



# WC-4 High-Efficiency Irrigation

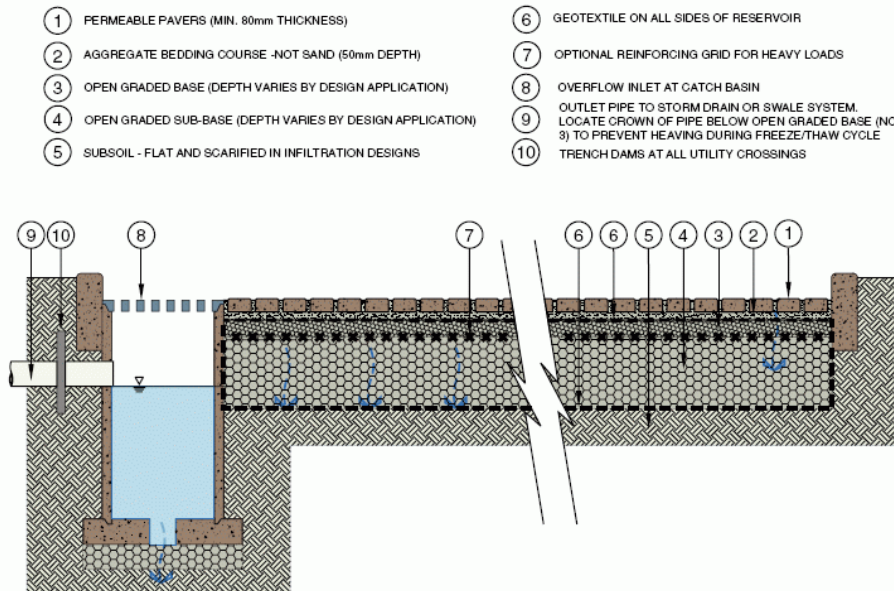
- Preference is for none
- Drip irrigation to reduce evaporation and overspray
- Timers/automatic shut-off
- Plan irrigation zones carefully





# WC-5 Pervious Pavers for outdoor patios & walkways

- Use at least 50% pervious material for outdoor patios & walkways
- Allows rainwater to soak through
- Reduces runoff. reduce need to water plants



4 PERVIOUS PAVING - FULL INFILTRATION  
A Not To Scale

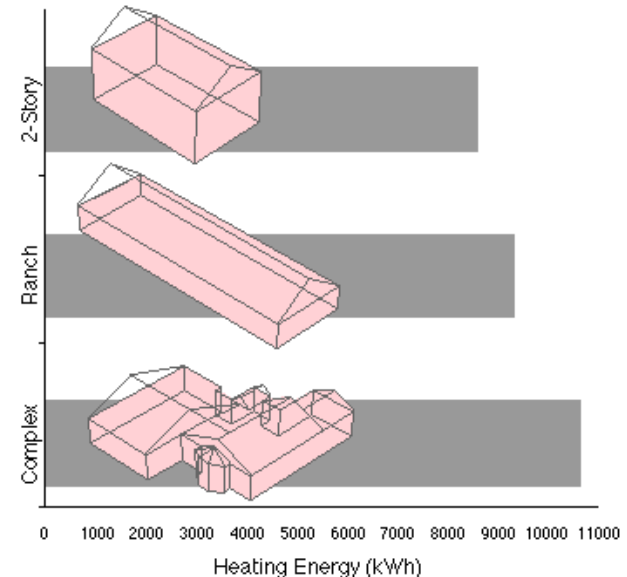
Section





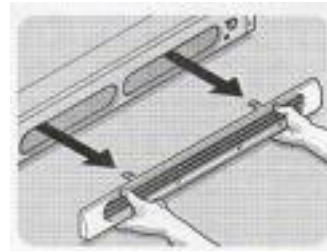
# OM-1 Property Management O&M Manual & Training

- Operation & maintenance of sustainable technologies
- Resource & Energy conservation
- Signed letter confirming training of staff



# OM-2 Tenant O&M Manual & Training

- Hands on training
- Programming thermostats
- Cleaning refrigerator coils
- Minimizing appliance electrical use
- Teach Sustainable design ideals
- Signed letter for each unit



# OM-3 Integrated Pest Management

